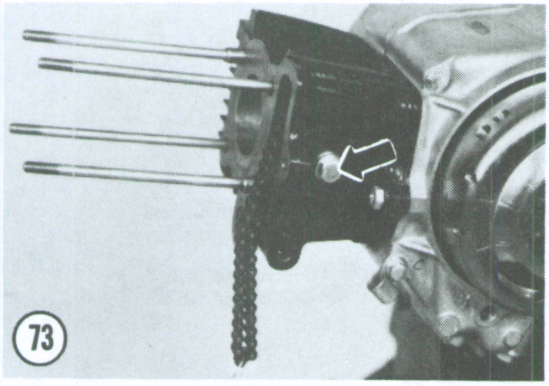
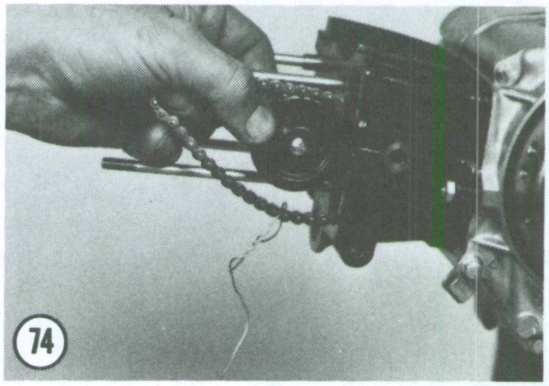




on the end of the pushrod is not worn or cracked; replace if necessary.

CYLINDER

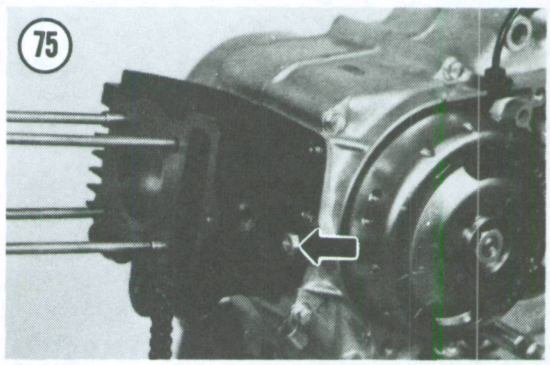
Removal

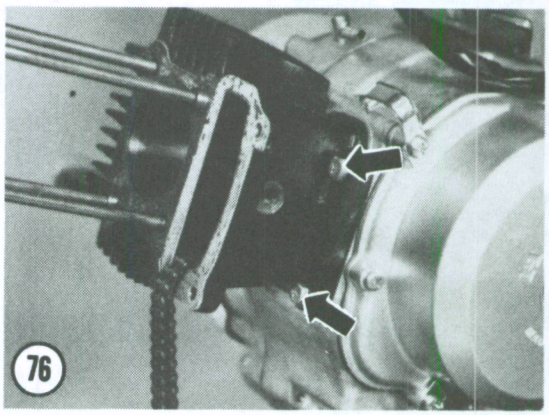
1. Remove the cylinder head as described in this chapter.
2. Remove the bolt (**Figure 73**) securing the cam chain roller and remove the roller (**Figure 74**).
3A. On ATC70 engines, remove the bolt (**Figure 75**) securing the cylinder to the crankcase.
3B. On ATC125M engines, remove the bolts (**Figure 76**) securing the cylinder to the crankcase.
4. Loosen the cylinder by tapping around the perimeter with a rubber or plastic mallet. If necessary, *gently* pry the cylinder loose with a broad-tipped screwdriver.
5. Pull the cylinder straight out and off of the crankcase studs. Work the cam chain wire through the opening in the cylinder.

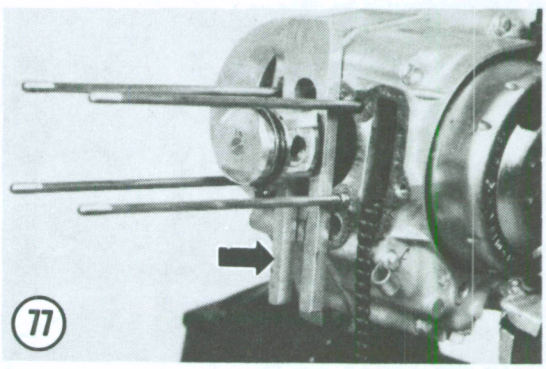
NOTE

Note the location of the locating dowels and O-ring seals prior to removing them. The location varies with different models and years. They must be installed on the same crankcase stud from which they were removed. If installed incorrectly, an oil leak will result.

6. Remove the cylinder base gasket and discard it. Remove the dowel pins from the crankcase studs.
7. Install a piston holding fixture under the piston (**Figure 77**) to protect the piston skirt from damage. This fixture may be purchased or may be a homemade unit of wood. See **Figure 78** for dimensions.

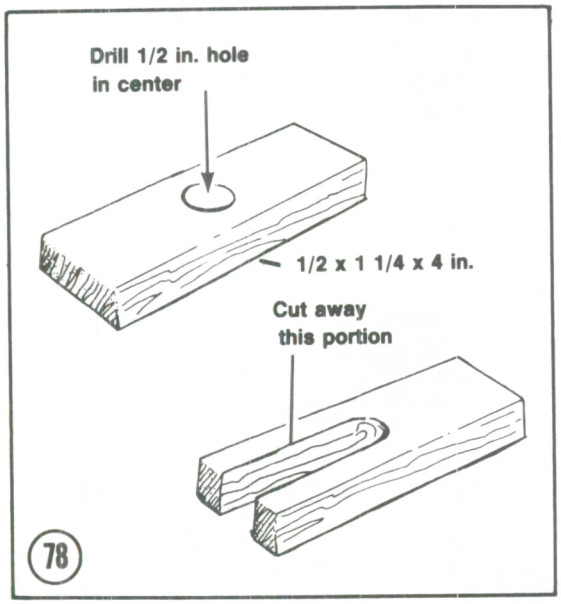


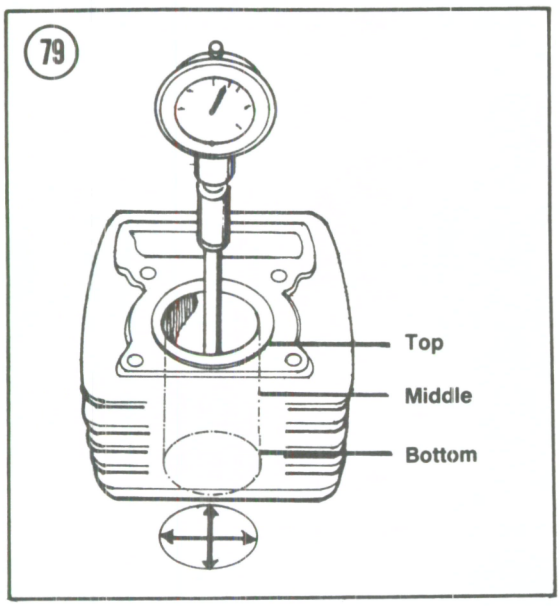




Inspection

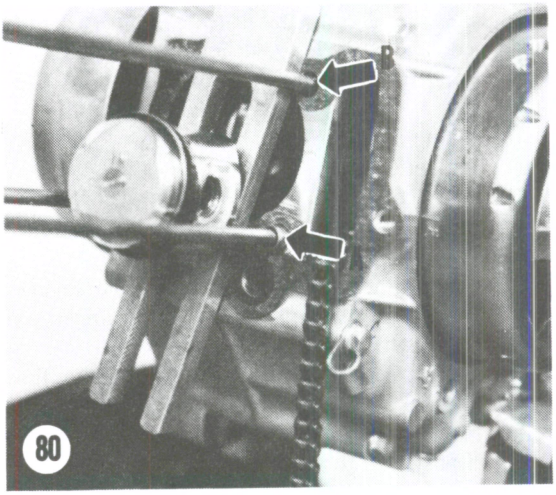
The following procedure requires the use of highly specialized and expensive measuring





instruments. If such equipment is not readily available, have the measurements performed by a dealer or qualified machine shop.

1. Soak with solvent any old cylinder head gasket material on the cylinder. Use a broad-tipped *dull* chisel and gently scrape off all gasket residue. Do not gouge the sealing surface as oil and air leaks will result.
2. Measure the cylinder bore with a cylinder gauge or inside micrometer at the points shown in **Figure 79**. Measure in 2 axes—in line with the piston pin and at 90°degrees to the pin. If the taper or



out-of-round is 0.10 mm (0.004 in.) or greater, the cylinder must be rebored to the next oversize and a new piston installed.

NOTE

The new piston should be obtained before the cylinder is rebored so that the piston can be measured; slight manufacturing tolerances must be taken into account to determine the actual size and working clearance.

3. Check the cylinder wall for scratches; if evident, the cylinder should be rebored.

NOTE

*The maximum wear limit on the cylinder is listed in **Table 1**. If the cylinder is worn to this limit, it must be replaced. Never rebore a cylinder if the finished rebore diameter will be this dimension or greater.*

Installation

1. Check that the top surface of the crankcase and the bottom surface of the cylinder are clean prior to installing a new base gasket.
2. Install a new cylinder base gasket.

NOTE

*In the next step, install the dowel pins and O-ring seals in the same location from which they were removed. Refer to Step 6, **Removal**.*

3. Install the dowel pins (A, **Figure 80**) and O-ring seals (B, **Figure 80**) onto the correct crankcase studs.
4. Install a piston holding fixture under the piston (**Figure 77**). This can be a purchased unit or a homemade unit (**Figure 78**).

5. Make sure the end gaps of the piston rings are *not* lined up with each other—they must be staggered. Lightly oil the piston rings and the inside of the cylinder bores with assembly oil.
6. Install the cylinder and slide it down onto the crankcase studs.
8. Carefully feed the cam chain and wire up through the opening in the cylinder and tie it to the engine.
9. Start the cylinder down over the piston (**Figure 81**). Compress each piston ring with your fingers as it enters the cylinder.
10. Slide the cylinder down until it bottoms on the piston holding fixture (**Figure 82**).
11. Remove the piston holding fixture and slide the cylinder down into place on the crankcase.
12A. On 70 cc engines, install the bolt (**Figure 75**) securing the cylinder to the crankcase and tighten it securely.
12B. On 125 cc engines, install the bolts (**Figure 76**) securing the cylinder to the crankcase and tighten securely.
13. Install the cam chain roller **Figure 74** in between the cam chain runs and install the bolt (**Figure 73**). Tighten the bolt securely.
14. Install the cylinder head as described in this chapter.
15. Adjust the valves and the cam chain tensioner as described in Chapter Three.
16. Follow the *Break-in Procedure* in this chapter if the cylinder was rebored, honed or a new piston or piston rings were installed.

PISTON, PISTON PIN AND PISTON RINGS

The piston is made of an aluminum alloy. The piston pin is made of steel and is a precision fit. The piston pin is held in place by a clip at each end.

Piston Removal

1. Remove the cylinder head and cylinder as described in this chapter.

WARNING
The edges of all piston rings are very sharp. Be careful when handling them to avoid cutting fingers.

2. Remove the top ring with a ring expander tool or by spreading the ends with your thumbs just enough to slide the ring up over the piston (**Figure 83**). Repeat for the remaining rings.

3. Before removing the piston, hold the rod tightly and rock the piston as shown in **Figure 84**. Any rocking motion (do not confuse with the normal sliding motion) indicates wear on the piston pin, piston pin bore or connecting rod small-end bore (more likely a combination of these).